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THE GENUS BURRAGEA (ONAGRACEAE)

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This genus was proposed by John Donnell Smith and J. N. Rose (Contr. U. S. Nat. Herb. 16: 297, 1913) for the plant originally described as *Gaura? fruticulosa* Bentham (Bot. Voy. Sulphur, 15, 1844). In 1950 John H. Thomas (Madroño 10: 163-166) made a study of the group and recognized two species: *B. fruticulosa* and *B. glabra.* Dr. Thomas did not cite any specimens of the original collection and did not, I take it, see type material. In 1959, while travelling in Europe with aid from National Science Foundation Grant 4316, I had opportunity to examine specimens in the London herbaria and I present herewith my conclusions. Herbarium abbreviations used in this paper in citing specimens are the standard ones.

DESCRIPTION OF THE GENUS

Low freely branched shrubs. Leaves alternate, closely set, subsessile, entire, thickish. Flowers in dense terminal leafy spikes, solitary in the leaf-axils. Ovary embedded in the stem-axis, 2-loculed. Floral tube filiform, arising from the stem, almost closed at the orifice by an annular disc. Sepals 4, lanceolate, acute, reflexed in anthesis. Petals 4, roundish-obovate, alike. Stamens 8, all functional, but the 4 episepalous longer; anthers versatile. Stigma capitate or nearly so. Fruit somewhat diamond-shaped, 2-seeded, embedded in the thickened woody axis of the flowering shoot, breaking away tardily.

KEY TO BURRAGEA

Plants glabrous; leaves mostly 4-7 mm. broad.....3. *B. fruticulosa* subsp. *glabra*

Plants more or less pubescent; leaves mostly 2-4 mm. broad.

Young growth almost scabrid, the hairs or projections ca. 0.05 mm. long; leaves mostly 2.5-3.5 mm. broad.....1. *B. fruticulosa* var. *fruticulosa*

Young growth glandular-pubescent, the hairs ca. 0.5 mm. long; leaves mostly 2-4 mm. wide.....2. *B. fruticulosa* var. *frutescens*

1. BURRAGEA FRUTICULOSA (Benth.) Donnell Smith & Rose,

Contr. U. S. Nat. Herb. 16: 298, 1913.

Gaura ? fruticulosa Benth., Bot. Voy. Sulph., 15, 1844.
Gongylocarpus fruticulosus T. S. Brandg., Proc. Calif. Acad. Sci., Ser. II, 2: 158, 1889.

Shrubs 3-6 dm. high, branching freely, the young twigs minutely seemingly almost scabrid with emergences ca. 0.05 mm. long; bark shredding; leaves closely set near ends of twigs, lance-linear to more or less oblanceolate, 2-4 cm. long, gland-tipped, entire; floral tube narrow, 1.5-3 cm. long, scabrellous; sepals rose, about 1 cm. long, scabrellous; petals rose, about 1 cm. long; stamens 5-9 mm. long; anthers about 2 mm. long; style about as long as or slightly longer than stamens; stigma about 1 mm. in diameter; fruiting axis 2-10 cm. long, 4-6 mm. thick, slightly indented between ovaries which split tardily; seeds 3-4 mm. long, angled, pubescent, dark brown.

Type locality, Magdalena Bay, Lower California, Mexico. Type by *R. B. Hinds* in 1839, Herb. Benth. (K). The selection of the type is worth discussion. The Botany of the Sulphur, at least the first parts, was edited by Hinds, Surgeon on the Sulphur Expedition and its official botanist. Botanical descriptions were written by Bentham. On a large part of the voyage there was a second botanical collector, Mr. Barclay, sent out by the "Royal Garden of Kew" (Benth., Bot. Voy. Sulph., 182, 1846), who visited most of the places where col-

lections were made. Hinds (Bot. Voy. Sulph., 4-5) gives the time of the visit to Magdalena Bay as Nov., 1839. Since he was the official botanist of the expedition and editor of the book describing the plants taken and since Bentham described these plants, the Hinds specimens in the Bentham Herbarium (now at Kew) must be considered the types. At Kew there is a sheet in the Bentham Herbarium and containing two collections: (1.) "Hinds in 1841," with three pieces of plant of the scabrellous kind and the nomenclatorial type, and (2.) "Barclay in 1843," with one branch and of the longer glandular type of pubescence, which I refer to var. *frutescens*. A Kew sheet from the Hooker Herbarium has been designated as the type by a label, wrongly in my opinion, and it also has two collections from Magdalena Bay: one, I presume by Hinds, and with both scabrellous and glandular-pubescent fragments, and the other by Barclay, with only glandular-pubescent material. The year 1841, on what I take to be the Hinds type, must be in error. Mrs. McKelvey (Bot. Explor. Trans-Miss. West, p. 649, 1955) says that after leaving Mexico, the Sulphur started across the Pacific in January of 1840 and reached England by way of China in 1842. Hence dates after 1839 for Magdalena Bay are impossible.

Other collections seen, all from Baja California: MAGDALENA BAY: Nov., 1839, *Barclay 3145* in part (BM); May 29, 1925, *H. L. Mason 1885* (F, CAS in part, K, US in part). MAGDALENA ISLAND, in 1888, *W. E. Bryant* (UC part of *G. frutescens* collection); Jan. 13, 1889, *T. S. Brandegee* (DS, US); March, 1892, *T. S. Brandegee* (F, GH, NY, UC); Nov. 1902, *T. S. Brandegee* (US); Nov. 24, 1905, *Nelson & Goldman 7295* (POM).

2. **Burragea fruticulosa** var. **frutescens** (Curran) Munz, comb. nov.

Gongylocarpus frutescens Curran, Proc. Calif. Acad. Sci., Ser. II, 1: 231, 1888 as to type.
Burragea frutescens Donnell Smith & Rose, Contr. U. S. Nat. Herb. 16: 298, 1913.

Young growth, floral tube and sepals glandular pubescent with hairs up to ca. 0.5 mm. long.

Type, from Magdalena Bay, *W. E. Bryant in 1888* (CAS).

Additional material seen, MAGDALENA BAY, *Barclay in 1843,* (K, photo at US); Nov., 1839, *Barclay 3145* (BM in large part), *Barclay 3146* (BM); Jan., 1889, *T. S. Brandegee* (MO); Oct. 10, 1939, *E. O. Berry 51* (CAS, DS); *H. L. Mason 1885* (CAS in part, DS, NY, US in part). MAGDALENA ISLAND, March, 1917, *C. R. Orcutt 88* (NY, US); March, 1917, *Orcutt 45* (US); Jan. 21, 1889, *T. S. Brandegee* (GH, NY, PH, UC); Feb. 25, 1889, *T. S. Brandegee* (PH); April 11, 1930, *D. A. Johansen 620* (DS, MICH). SANTA MARGARITA ISLAND, March 19, 1911, *J. N. Rose 16284* (F, K, MO, NY, UC, US); April 9, 1930, *Johansen 617* (CAS, DS, MICH).

It can be seen from the citation of specimens in the two taxa given above that both grow in the same area and most large collections have a mixture of both forms. For this reason varietal status seems adequate.

3. **Burragea fruticulosa** subsp. **glabra** (J. H. Thomas) Munz, comb. nov.

B. glabra Thomas, Madroño 10: 164, 1950.

Young growth and floral parts essentially glabrous; leaves mostly 5-7 (-8) mm. broad.

Type locality, Santa Maria Bay, Magdalena Island, Baja California.

Material seen, SANTA MARIA BAY, March 18, 1911, *J. N. Rose 16263* (F, DS, K, MO, NY, UC, US); east base of Mt. San Lazaro, March 30, 1952, *R. Moran 3529* (DS, UC).